

*[Faint, illegible handwritten notes]*

&lt;120&gt; Purified Active HCV NS2/3 Protease

<150> 60/256,031

<160> 21

<210> 1

<212> DNA

<213> HCV

 $\langle 220 \rangle$ 

<221> CDS

 $\langle 222 \rangle \quad (1) \dots (1230)$ 

<400> 1

1

ttc atg aag cta gct gcg ctg aca ggt acg tac gtt tat gac cat ctc	432
Phe Met Lys Leu Ala Ala Leu Thr Gly Thr Tyr Val Tyr Asp His Leu	
130 135 140	
act cca ttg cag gat tgg gcc cac gcg ggc cta cga gac ctt gca gtg	480
Thr Pro Leu Gln Asp Trp Ala His Ala Gly Leu Arg Asp Leu Ala Val	
145 150 155 160	
gcg gta gag ccc gtc atc ttc tct gac atg gag gtc aag atc atc acc	528
Ala Val Glu Pro Val Ile Phe Ser Asp Met Glu Val Lys Ile Ile Thr	
165 170 175	
tgg ggg gcg gac acc gcg gca tgc ggg gac atc att tca ggt ctg ccc	576
Trp Gly Ala Asp Thr Ala Ala Cys Gly Asp Ile Ile Ser Gly Leu Pro	
180 185 190	
gtc tcc gct cga agg gga agg gag ata ctc ctg gga ccg gcc gat aat	624
Val Ser Ala Arg Arg Gly Arg Glu Ile Leu Leu Gly Pro Ala Asp Asn	
195 200 205	
ttt gaa ggg cag ggg tgg cga ctc ctt gcg ccc atc acg gcc tac tcc	672
Phe Glu Gly Gln Gly Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr Ser	
210 215 220	
caa cag aca cgg ggc cta ctt ggt tgc atc atc acc agc ctc aca ggc	720
Gln Gln Thr Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly	
225 230 235 240	
cgg gac aag aac cag gtc gag ggg gag gtt caa gtg gtc tcc acc gct	768
Arg Asp Lys Asn Gln Val Glu Gly Glu Val Gln Val Val Ser Thr Ala	
245 250 255	
aca caa tct ttc ctg gcg acc tgc gtc aac ggc gtg tgt tgg act gtc	816
Thr Gln Ser Phe Leu Ala Thr Cys Val Asn Gly Val Cys Trp Thr Val	
260 265 270	
ttc cat ggc gcc ggc tca aag acc ttg gcc ggc ccc aaa ggc cca atc	864
Phe His Gly Ala Gly Ser Lys Thr Leu Ala Gly Pro Lys Gly Pro Ile	
275 280 285	
acc cag atg tac act aat gtg gac cag gac ctc gtc ggc tgg cag gcg	912
Thr Gln Met Tyr Thr Asn Val Asp Gln Asp Leu Val Gly Trp Gln Ala	
290 295 300	
ccc cct ggg gcg cgc tcc atg aca cca tgc acc tgc ggc agc tcg gac	960
Pro Pro Gly Ala Arg Ser Met Thr Pro Cys Thr Cys Gly Ser Ser Asp	
305 310 315 320	
ctc tat ttg gtc acg aga cat gcc gac gtc att ccg gtg cgc cgg cgg	1008
Leu Tyr Leu Val Thr Arg His Ala Asp Val Ile Pro Val Arg Arg Arg	
325 330 335	
ggc gac agt agg ggg agc ctg ctc tcc ccc agg cct gtc tcc tac ttg	1056
Gly Asp Ser Arg Gly Ser Leu Leu Ser Pro Arg Pro Val Ser Tyr Leu	
340 345 350	

aag ggc tct tcg ggt ggc cca ctg ctc tgc cct tcg ggg cac gct gtg 1104  
 Lys Gly Ser Ser Gly Gly Pro Leu Leu Cys Pro Ser Gly His Ala Val  
 355 360 365

ggc atc ttc cgg gct gct gtg tgc acc cgg ggg gtt gca aaa gcg gtg 1152  
 Gly Ile Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala Lys Ala Val  
 370 375 380

gac ttc ata cct gtt gag tct atg gaa act acc atg cgg act agt agc 1200  
 Asp Phe Ile Pro Val Glu Ser Met Glu Thr Thr Met Arg Thr Ser Ser  
 385 390 395 400

gct tgg cgt cac ccg cag ttc ggt ggt taa 1230  
 Ala Trp Arg His Pro Gln Phe Gly Gly \*

<210> 2  
 <211> 409  
 <212> PRT  
 <213> HCV

<400> 2  
 Met Asp Arg Glu Met Ala Ala Ser Cys Gly Gly Ala Val Phe Ile Gly  
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 Leu Ala Leu Leu Thr Leu Ser Pro Tyr Tyr Lys Val Leu Leu Ala Arg  
 20 25 30  
 Leu Ile Trp Trp Leu Gln Tyr Leu Ile Thr Arg Val Glu Ala His Leu  
 35 40 45  
 Gln Val Trp Ile Pro Pro Leu Asn Val Arg Gly Gly Arg Asp Ala Ile  
 50 55 60  
 Ile Leu Leu Thr Cys Ala Val His Pro Glu Leu Ile Phe Asp Ile Thr  
 65 70 75 80  
 Lys Leu Leu Leu Ala Ile Phe Gly Pro Leu Met Val Leu Gln Ala Gly  
 85 90 95  
 Ile Thr Lys Val Pro Tyr Phe Val Arg Ala Gln Gly Leu Ile Arg Ala  
 100 105 110  
 Cys Met Leu Val Arg Lys Ala Ala Leu Thr Gly Thr Tyr Val Tyr Asp His Leu  
 115 120 125  
 Phe Met Lys Leu Ala Ala Leu Thr Gly Thr Tyr Val Tyr Asp His Leu  
 130 135 140  
 Thr Pro Leu Gln Asp Trp Ala His Ala Gly Leu Arg Asp Leu Ala Val  
 145 150 155 160  
 Ala Val Glu Pro Val Ile Phe Ser Asp Met Glu Val Lys Ile Ile Thr  
 165 170 175  
 Trp Gly Ala Asp Thr Ala Ala Cys Gly Asp Ile Ile Ser Gly Leu Pro  
 180 185 190  
 Val Ser Ala Arg Arg Gly Arg Glu Ile Leu Leu Gly Pro Ala Asp Asn  
 195 200 205  
 Phe Glu Gly Gln Gly Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr Ser  
 210 215 220  
 Gln Gln Thr Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly  
 225 230 235 240  
 Arg Asp Lys Asn Gln Val Glu Gly Glu Val Gln Val Val Ser Thr Ala  
 245 250 255  
 Thr Gln Ser Phe Leu Ala Thr Cys Val Asn Gly Val Cys Trp Thr Val  
 260 265 270

Phe His Gly Ala Gly Ser Lys Thr Leu Ala Gly Pro Lys Gly Pro Ile  
 275 280 285  
 Thr Gln Met Tyr Thr Asn Val Asp Gln Asp Leu Val Gly Trp Gln Ala  
 290 295 300  
 Pro Pro Gly Ala Arg Ser Met Thr Pro Cys Thr Cys Gly Ser Ser Asp  
 305 310 315 320  
 Leu Tyr Leu Val Thr Arg His Ala Asp Val Ile Pro Val Arg Arg Arg  
 325 330 335  
 Gly Asp Ser Arg Gly Ser Leu Leu Ser Pro Arg Pro Val Ser Tyr Leu  
 340 345 350  
 Lys Gly Ser Ser Gly Gly Pro Leu Leu Cys Pro Ser Gly His Ala Val  
 355 360 365  
 Gly Ile Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala Lys Ala Val  
 370 375 380  
 Asp Phe Ile Pro Val Glu Ser Met Glu Thr Thr Met Arg Thr Ser Ser  
 385 390 395 400  
 Ala Trp Arg His Pro Gln Phe Gly Gly  
 405

<210> 3  
 <211> 1011  
 <212> DNA  
 <213> HCV

<220>  
 <221> CDS  
 <222> (1)...(1005)

<400> 3  
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 Met Lys Lys Lys Lys Leu Glu His His His His His His Thr Ser Ala  
 1 5 10 15  
 ggc ata acc aaa gtg ccg tac ttc gtg cgt gcg cag ggg ctc att cgt 96  
 Gly Ile Thr Lys Val Pro Tyr Phe Val Arg Ala Gln Gly Leu Ile Arg  
 20 25 30  
 gcg tgt atg ttg gtg cgg aag gct gcg ggg ggt cat tat gtc caa atg 144  
 Ala Cys Met Leu Val Arg Lys Ala Ala Gly Gly His Tyr Val Gln Met  
 35 40 45  
 gcc ttc atg aag cta gct gcg ctg aca ggt acg tac gtt tat gac cat 192  
 Ala Phe Met Lys Leu Ala Ala Leu Thr Gly Thr Tyr Val Tyr Asp His  
 50 55 60  
 ctc act cca ttg cag gat tgg gcc cac gcg ggc cta cga gac ctt gca 240  
 Leu Thr Pro Leu Gln Asp Trp Ala His Ala Gly Leu Arg Asp Leu Ala  
 65 70 75 80  
 gtg gcg gta gag ccc gtc atc ttc tct gac atg gag gtc aag atc atc 288  
 Val Ala Val Glu Pro Val Ile Phe Ser Asp Met Glu Val Lys Ile Ile  
 85 90 95  
 acc tgg ggg gcg gac acc gcg gca tgc ggg gac atc att tca ggt ctg 336  
 Thr Trp Gly Ala Asp Thr Ala Ala Cys Gly Asp Ile Ile Ser Gly Leu  
 100 105 110

ccc gtc tcc gct cga agg gga agg gag ata ctc ctg gga ccg gcc gat	384
Pro Val Ser Ala Arg Arg Gly Arg Glu Ile Leu Leu Gly Pro Ala Asp	
115 120 125	
aat ttt gaa ggg cag ggg tgg cga ctc ctt gcg ccc atc acg gcc tac	432
Asn Phe Glu Gly Gln Gly Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr	
130 135 140	
tcc caa cag aca cgg ggc cta ctt ggt tgc atc atc acc agc ctc aca	480
Ser Gln Gln Thr Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr	
145 150 155 160	
ggc cgg gac aag aac cag gtc gag ggg gag gtt caa gtg gtc tcc acc	528
Gly Arg Asp Lys Asn Gln Val Glu Gly Glu Val Gln Val Val Ser Thr	
165 170 175	
gct aca caa tct ttc ctg gcg acc tgc gtc aac ggc gtg tgt tgg act	576
Ala Thr Gln Ser Phe Leu Ala Thr Cys Val Asn Gly Val Cys Trp Thr	
180 185 190	
gtc ttc cat ggc gcc ggc tca aag acc ttg gcc ggc ccc aaa ggc cca	624
Val Phe His Gly Ala Gly Ser Lys Thr Leu Ala Gly Pro Lys Gly Pro	
195 200 205	
atc acc cag atg tac act aat gtg gac cag gac ctc gtc ggc tgg cag	672
Ile Thr Gln Met Tyr Thr Asn Val Asp Gln Asp Leu Val Gly Trp Gln	
210 215 220	
gcg ccc cct ggg gcg cgc tcc atg aca cca tgc acc tgc ggc agc tcg	720
Ala Pro Pro Gly Ala Arg Ser Met Thr Pro Cys Thr Cys Gly Ser Ser	
225 230 235 240	
gac ctc tat ttg gtc acg aga cat gcc gac gtc att ccg gtg cgc cgg	768
Asp Leu Tyr Leu Val Thr Arg His Ala Asp Val Ile Pro Val Arg Arg	
245 250 255	
cgg ggc gac agt agg ggg agc ctg ctc tcc ccc agg cct gtc tcc tac	816
Arg Gly Asp Ser Arg Gly Ser Leu Leu Ser Pro Arg Pro Val Ser Tyr	
260 265 270	
ttg aag ggc tct tcg ggt ggc cca ctg ctc tgc cct tcg ggg cac gct	864
Leu Lys Gly Ser Ser Gly Gly Pro Leu Leu Cys Pro Ser Gly His Ala	
275 280 285	
gtg ggc atc ttc cgg gct gct gtg tgc acc cgg ggg gtt gca aaa gcg	912
Val Gly Ile Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala Lys Ala	
290 295 300	
gtg gac ttc ata cct gtt gag tct atg gaa act acc atg cgg act agt	960
Val Asp Phe Ile Pro Val Glu Ser Met Glu Thr Met Arg Thr Ser	
305 310 315 320	
agc gct tgg cgt cac ccg cag ttc ggt ggt aaa aag aaa aag taa	1005
Ser Ala Trp Arg His Pro Gln Phe Gly Gly Lys Lys Lys Lys *	
325 330	
ggatcc	1011



<210> 6  
 <211> 63  
 <212> DNA  
 <213> HCV

<400> 6  
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 cat 63

<210> 7  
 <211> 46  
 <212> DNA  
 <213> HCV

<400> 7  
 gctcgagcat caccatcacc atcacactag tgcaggcata accaaa 46

<210> 8  
 <211> 45  
 <212> DNA  
 <213> HCV

<400> 8  
 aacaatggat ccttactttt tctttttacc accgaactgc ggggtg 45

<210> 9  
 <211> 45  
 <212> DNA  
 <213> HCV

<400> 9  
 acctgccata tgaaaaagaa aaagctcgag catcaccatc accat 45

<210> 10  
 <211> 303  
 <212> PRT  
 <213> HCV

<400> 10  
 Ala Gly Ile Thr Lys Val Pro Tyr Phe Val Arg Ala Gln Gly Leu Ile  
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 Arg Ala Cys Met Leu Val Arg Lys Ala Ala Gly Gly His Tyr Val Gln  
 20 25 30  
 Met Ala Phe Met Lys Leu Ala Ala Leu Thr Gly Thr Tyr Val Tyr Asp  
 35 40 45  
 His Leu Thr Pro Leu Gln Asp Trp Ala His Ala Gly Leu Arg Asp Leu  
 50 55 60  
 Ala Val Ala Val Glu Pro Val Ile Phe Ser Asp Met Glu Val Lys Ile  
 65 70 75 80  
 Ile Thr Trp Gly Ala Asp Thr Ala Ala Cys Gly Asp Ile Ile Ser Gly  
 85 90 95  
 Leu Pro Val Ser Ala Arg Arg Gly Arg Glu Ile Leu Leu Gly Pro Ala  
 100 105 110  
 Asp Asn Phe Glu Gly Gln Gly Trp Arg Leu Leu Ala Pro Ile Thr Ala  
 115 120 125  
 Tyr Ser Gln Gln Thr Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu  
 130 135 140

Thr	Gly	Arg	Asp	Lys	Asn	Gln	Val	Glu	Gly	Glu	Val	Gln	Val	Val	Ser
145					150					155					160
Thr	Ala	Thr	Gln	Ser	Phe	Leu	Ala	Thr	Cys	Val	Asn	Gly	Val	Cys	Trp
				165					170					175	
Thr	Val	Phe	His	Gly	Ala	Gly	Ser	Lys	Thr	Leu	Ala	Gly	Pro	Lys	Gly
			180					185					190		
Pro	Ile	Thr	Gln	Met	Tyr	Thr	Asn	Val	Asp	Gln	Asp	Leu	Val	Gly	Trp
		195					200					205			
Gln	Ala	Pro	Pro	Gly	Ala	Arg	Ser	Met	Thr	Pro	Cys	Thr	Cys	Gly	Ser
	210					215					220				
Ser	Asp	Leu	Tyr	Leu	Val	Thr	Arg	His	Ala	Asp	Val	Ile	Pro	Val	Arg
225					230					235					240
Arg	Arg	Gly	Asp	Ser	Arg	Gly	Ser	Leu	Leu	Ser	Pro	Arg	Pro	Val	Ser
				245						250				255	
Tyr	Leu	Lys	Gly	Ser	Ser	Gly	Gly	Pro	Leu	Leu	Cys	Pro	Ser	Gly	His
			260					265					270		
Ala	Val	Gly	Ile	Phe	Arg	Ala	Ala	Val	Cys	Thr	Arg	Gly	Val	Ala	Lys
		275					280					285			
Ala	Val	Asp	Phe	Ile	Pro	Val	Glu	Ser	Met	Glu	Thr	Thr	Met	Arg	
	290					295					300				

<210>	11
<211>	393
<212>	PRT
<213>	HCV

<400> 11

Met 1	Ala	Ala	Ser	Cys 5	Gly	Gly	Ala	Val	Phe 10	Ile	Gly	Leu	Ala	Leu 15	Leu
Thr	Leu	Ser	Pro	Tyr	Tyr	Lys	Val	Leu	Leu	Ala	Arg	Leu	Ile	Trp	Trp
			20					25					30		
Leu	Gln	Tyr	Leu	Ile	Thr	Arg	Val	Glu	Ala	His	Leu	Gln	Val	Trp	Ile
		35					40					45			
Pro	Pro	Leu	Asn	Val	Arg	Gly	Arg	Arg	Asp	Ala	Ile	Ile	Leu	Leu	Thr
	50					55					60				
Cys 65	Ala	Val	His	Pro	Glu	Leu	Ile	Phe	Asp	Ile	Thr	Lys	Leu	Leu	Leu
					70					75					80
Ala	Ile	Phe	Gly	Pro	Leu	Met	Val	Leu	Gln	Ala	Gly	Ile	Thr	Lys	Val
			85						90					95	
Pro	Tyr	Phe	Val	Arg	Ala	Gln	Gly	Leu	Ile	Arg	Ala	Cys	Met	Leu	Val
			100					105					110		
Arg	Lys	Ala	Ala	Gly	Gly	His	Tyr	Val	Gln	Met	Ala	Phe	Met	Lys	Leu
		115					120					125			
Ala	Ala	Leu	Thr	Gly	Thr	Tyr	Val	Tyr	Asp	His	Leu	Thr	Pro	Leu	Gln
	130					135					140				
Asp 145	Trp	Ala	His	Ala	Gly	Leu	Arg	Asp	Leu	Ala	Val	Ala	Val	Glu	Pro
				150					155					160	
Val	Ile	Phe	Ser	Asp	Met	Glu	Val	Lys	Ile	Ile	Thr	Trp	Gly	Ala	Asp
			165					170					175		
Thr	Ala	Ala	Cys	Gly	Asp	Ile	Ile	Ser	Gly	Leu	Pro	Val	Ser	Ala	Arg
		180						185					190		
Arg	Gly	Arg	Glu	Ile	Leu	Leu	Gly	Pro	Ala	Asp	Asn	Phe	Glu	Gly	Gln
	195						200					205			
Gly	Trp	Arg	Leu	Leu	Ala	Pro	Ile	Thr	Ala	Tyr	Ser	Gln	Gln	Thr	Arg
	210					215					220				
Gly	Leu	Leu	Gly	Cys	Ile	Ile	Thr	Ser	Leu	Thr	Gly	Arg	Asp	Lys	Asn
225				230						235					240



Gln Val Glu Gly Glu Val Gln Val Val Ser Thr Ala Thr Gln Ser Phe  
245 250 255  
Leu Ala Thr Cys Val Asn Gly Val Cys Trp Thr Val Phe His Gly Ala  
260 265 270  
Gly Ser Lys Thr Leu Ala Gly Pro Lys Gly Pro Ile Thr Gln Met Tyr  
275 280 285  
Thr Asn Val Asp Gln Asp Leu Val Gly Trp Gln Ala Pro Pro Gly Ala  
290 295 300  
Arg Ser Met Thr Pro Cys Thr Cys Gly Ser Ser Asp Leu Tyr Leu Val  
305 310 315 320  
Thr Arg His Ala Asp Val Ile Pro Val Arg Arg Arg Gly Asp Ser Arg  
325 330 335  
Gly Ser Leu Leu Ser Pro Arg Pro Val Ser Tyr Leu Lys Gly Ser Ser  
340 345 350  
Gly Gly Pro Leu Leu Cys Pro Ser Gly His Ala Val Gly Ile Phe Arg  
355 360 365  
Ala Ala Val Cys Thr Arg Gly Val Ala Lys Ala Val Asp Phe Ile Pro  
370 375 380  
Val Glu Ser Met Glu Thr Thr Met Arg  
385 390

<210> 12  
<211> 380  
<212> PRT  
<213> HCV

<400> 12  
Ala Leu Leu Thr Leu Ser Pro Tyr Tyr Lys Val Leu Leu Ala Arg Leu  
1 5 10 15  
Ile Trp Trp Leu Gln Tyr Leu Ile Thr Arg Val Glu Ala His Leu Gln  
20 25 30  
Val Trp Ile Pro Pro Leu Asn Val Arg Gly Gly Arg Asp Ala Ile Ile  
35 40 45  
Leu Leu Thr Cys Ala Val His Pro Glu Leu Ile Phe Asp Ile Thr Lys  
50 55 60  
Leu Leu Leu Ala Ile Phe Gly Pro Leu Met Val Leu Gln Ala Gly Ile  
65 70 75 80  
Thr Lys Val Pro Tyr Phe Val Arg Ala Gln Gly Leu Ile Arg Ala Cys  
85 90 95  
Met Leu Val Arg Lys Ala Ala Gly Gly His Tyr Val Gln Met Ala Phe  
100 105 110  
Met Lys Leu Ala Ala Leu Thr Gly Thr Tyr Val Tyr Asp His Leu Thr  
115 120 125  
Pro Leu Gln Asp Trp Ala His Ala Gly Leu Arg Asp Leu Ala Val Ala  
130 135 140  
Val Glu Pro Val Ile Phe Ser Asp Met Glu Val Lys Ile Ile Thr Trp  
145 150 155 160  
Gly Ala Asp Thr Ala Ala Cys Gly Asp Ile Ile Ser Gly Leu Pro Val  
165 170 175  
Ser Ala Arg Arg Gly Arg Glu Ile Leu Leu Gly Pro Ala Asp Asn Phe  
180 185 190  
Glu Gly Gln Gly Trp Arg Leu Leu Ala Pro Ile Thr Ala Tyr Ser Gln  
195 200 205  
Gln Thr Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu Thr Gly Arg  
210 215 220  
Asp Lys Asn Gln Val Glu Gly Glu Val Gln Val Val Ser Thr Ala Thr  
225 230 235 240

Gln Ser Phe Leu Ala Thr Cys Val Asn Gly Val Cys Trp Thr Val Phe  
245 250 255  
His Gly Ala Gly Ser Lys Thr Leu Ala Gly Pro Lys Gly Pro Ile Thr  
260 265 270  
Gln Met Tyr Thr Asn Val Asp Gln Asp Leu Val Gly Trp Gln Ala Pro  
275 280 285  
Pro Gly Ala Arg Ser Met Thr Pro Cys Thr Cys Gly Ser Ser Asp Leu  
290 295 300  
Tyr Leu Val Thr Arg His Ala Asp Val Ile Pro Val Arg Arg Arg Gly  
305 310 315 320  
Asp Ser Arg Gly Ser Leu Leu Ser Pro Arg Pro Val Ser Tyr Leu Lys  
325 330 335  
Gly Ser Ser Gly Gly Pro Leu Leu Cys Pro Ser Gly His Ala Val Gly  
340 345 350  
Ile Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala Lys Ala Val Asp  
355 360 365  
Phe Ile Pro Val Glu Ser Met Glu Thr Thr Met Arg  
370 375 380

<210> 13  
<211> 352  
<212> PRT  
<213> HCV

<400> 13

Ala His Leu Gln Val Trp Ile Pro Pro Leu Asn Val Arg Gly Gly Arg  
1 5 10 15  
Asp Ala Ile Ile Leu Leu Thr Cys Ala Val His Pro Glu Leu Ile Phe  
20 25 30  
Asp Ile Thr Lys Leu Leu Leu Ala Ile Phe Gly Pro Leu Met Val Leu  
35 40 45  
Gln Ala Gly Ile Thr Lys Val Pro Tyr Phe Val Arg Ala Gln Gly Leu  
50 55 60  
Ile Arg Ala Cys Met Leu Val Arg Lys Ala Ala Gly Gly His Tyr Val  
65 70 75 80  
Gln Met Ala Phe Met Lys Leu Ala Ala Leu Thr Gly Thr Tyr Val Tyr  
85 90 95  
Asp His Leu Thr Pro Leu Gln Asp Trp Ala His Ala Gly Leu Arg Asp  
100 105 110  
Leu Ala Val Ala Val Glu Pro Val Ile Phe Ser Asp Met Glu Val Lys  
115 120 125  
Ile Ile Thr Trp Gly Ala Asp Thr Ala Ala Cys Gly Asp Ile Ile Ser  
130 135 140  
Gly Leu Pro Val Ser Ala Arg Arg Gly Arg Glu Ile Leu Leu Gly Pro  
145 150 155 160  
Ala Asp Asn Phe Glu Gly Gln Gly Trp Arg Leu Leu Ala Pro Ile Thr  
165 170 175  
Ala Tyr Ser Gln Gln Thr Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser  
180 185 190  
Leu Thr Gly Arg Asp Lys Asn Gln Val Glu Gly Glu Val Gln Val Val  
195 200 205  
Ser Thr Ala Thr Gln Ser Phe Leu Ala Thr Cys Val Asn Gly Val Cys  
210 215 220  
Trp Thr Val Phe His Gly Ala Gly Ser Lys Thr Leu Ala Gly Pro Lys  
225 230 235 240  
Gly Pro Ile Thr Gln Met Tyr Thr Asn Val Asp Gln Asp Leu Val Gly  
245 250 255

Trp Gln Ala Pro Pro Gly Ala Arg Ser Met Thr Pro Cys Thr Cys Gly  
 260 265 270  
 Ser Ser Asp Leu Tyr Leu Val Thr Arg His Ala Asp Val Ile Pro Val  
 275 280 285  
 Arg Arg Arg Gly Asp Ser Arg Gly Ser Leu Leu Ser Pro Arg Pro Val  
 290 295 300  
 Ser Tyr Leu Lys Gly Ser Ser Gly Gly Pro Leu Leu Cys Pro Ser Gly  
 305 310 315 320  
 His Ala Val Gly Ile Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala  
 325 330 335  
 Lys Ala Val Asp Phe Ile Pro Val Glu Ser Met Glu Thr Thr Met Arg  
 340 345 350

<210> 14  
 <211> 341  
 <212> PRT  
 <213> HCV

<400> 14  
 Val Arg Gly Gly Arg Asp Ala Ile Ile Leu Leu Thr Cys Ala Val His  
 1 5 10 15  
 Pro Glu Leu Ile Phe Asp Ile Thr Lys Leu Leu Leu Ala Ile Phe Gly  
 20 25 30  
 Pro Leu Met Val Leu Gln Ala Gly Ile Thr Lys Val Pro Tyr Phe Val  
 35 40 45  
 Arg Ala Gln Gly Leu Ile Arg Ala Cys Met Leu Val Arg Lys Ala Ala  
 50 55 60  
 Gly Gly His Tyr Val Gln Met Ala Phe Met Lys Leu Ala Ala Leu Thr  
 65 70 75 80  
 Gly Thr Tyr Val Tyr Asp His Leu Thr Pro Leu Gln Asp Trp Ala His  
 85 90 95  
 Ala Gly Leu Arg Asp Leu Ala Val Ala Val Glu Pro Val Ile Phe Ser  
 100 105 110  
 Asp Met Glu Val Lys Ile Ile Thr Trp Gly Ala Asp Thr Ala Ala Cys  
 115 120 125  
 Gly Asp Ile Ile Ser Gly Leu Pro Val Ser Ala Arg Arg Gly Arg Glu  
 130 135 140  
 Ile Leu Leu Gly Pro Ala Asp Asn Phe Glu Gly Gln Gly Trp Arg Leu  
 145 150 155 160  
 Leu Ala Pro Ile Thr Ala Tyr Ser Gln Gln Thr Arg Gly Leu Leu Gly  
 165 170 175  
 Cys Ile Ile Thr Ser Leu Thr Gly Arg Asp Lys Asn Gln Val Glu Gly  
 180 185 190  
 Glu Val Gln Val Val Ser Thr Ala Thr Gln Ser Phe Leu Ala Thr Cys  
 195 200 205  
 Val Asn Gly Val Cys Trp Thr Val Phe His Gly Ala Gly Ser Lys Thr  
 210 215 220  
 Leu Ala Gly Pro Lys Gly Pro Ile Thr Gln Met Tyr Thr Asn Val Asp  
 225 230 235 240  
 Gln Asp Leu Val Gly Trp Gln Ala Pro Pro Gly Ala Arg Ser Met Thr  
 245 250 255  
 Pro Cys Thr Cys Gly Ser Ser Asp Leu Tyr Leu Val Thr Arg His Ala  
 260 265 270  
 Asp Val Ile Pro Val Arg Arg Arg Gly Asp Ser Arg Gly Ser Leu Leu  
 275 280 285  
 Ser Pro Arg Pro Val Ser Tyr Leu Lys Gly Ser Ser Gly Gly Pro Leu  
 290 295 300



<210> 16  
 <211> 303  
 <212> PRT  
 <213> HCV

<400> 16  
 Ala Gly Ile Thr Lys Val Pro Tyr Phe Val Arg Ala Gln Gly Leu Ile  
 1 5 10 15  
 Arg Ala Cys Met Leu Val Arg Lys Ala Ala Gly Gly His Tyr Val Gln  
 20 25 30  
 Met Ala Phe Met Lys Leu Ala Ala Leu Thr Gly Thr Tyr Val Tyr Asp  
 35 40 45  
 Ala Leu Thr Pro Leu Gln Asn Trp Ala His Ala Gly Leu Arg Asp Leu  
 50 55 60  
 Ala Val Ala Val Glu Pro Val Ile Phe Ser Asp Met Glu Val Lys Ile  
 65 70 75 80  
 Ile Thr Trp Gly Ala Asp Thr Ala Ala Cys Gly Asp Ile Ile Ser Gly  
 85 90 95  
 Leu Pro Val Ser Ala Arg Arg Gly Arg Glu Ile Leu Leu Gly Pro Ala  
 100 105 110  
 Asp Asn Phe Glu Gly Gln Gly Trp Arg Leu Leu Ala Pro Ile Thr Ala  
 115 120 125  
 Tyr Ser Gln Gln Thr Arg Gly Leu Leu Gly Cys Ile Ile Thr Ser Leu  
 130 135 140  
 Thr Gly Arg Asp Lys Asn Gln Val Glu Gly Glu Val Gln Val Val Ser  
 145 150 155 160  
 Thr Ala Thr Gln Ser Phe Leu Ala Thr Cys Val Asn Gly Val Cys Trp  
 165 170 175  
 Thr Val Phe His Gly Ala Gly Ser Lys Thr Leu Ala Gly Pro Lys Gly  
 180 185 190  
 Pro Ile Thr Gln Met Tyr Thr Asn Val Asp Gln Asp Leu Val Gly Trp  
 195 200 205  
 Gln Ala Pro Pro Gly Ala Arg Ser Met Thr Pro Cys Thr Cys Gly Ser  
 210 215 220  
 Ser Asp Leu Tyr Leu Val Thr Arg His Ala Asp Val Ile Pro Val Arg  
 225 230 235 240  
 Arg Arg Gly Asp Ser Arg Gly Ser Leu Leu Ser Pro Arg Pro Val Ser  
 245 250 255  
 Tyr Leu Lys Gly Ser Ser Gly Gly Pro Leu Leu Cys Pro Ser Gly His  
 260 265 270  
 Ala Val Gly Ile Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala Lys  
 275 280 285  
 Ala Val Asp Phe Ile Pro Val Glu Ser Met Glu Thr Thr Met Arg  
 290 295 300

<210> 17  
 <211> 301  
 <212> PRT  
 <213> HCV

<400> 17  
 Ala Gly Ile Thr Lys Val Pro Tyr Phe Val Arg Ala Gln Gly Leu Ile  
 1 5 10 15  
 Arg Ala Cys Met Leu Val Arg Lys Ala Ala Gly Gly His Tyr Val Gln  
 20 25 30  
 Met Ala Phe Met Lys Leu Ala Ala Leu Thr Gly Thr Tyr Val Tyr Asp  
 35 40 45

His	Leu	Thr	Pro	Leu	Gln	Asp	Trp	Ala	His	Ala	Gly	Leu	Arg	Asp	Leu
50						55					60				
Ala	Val	Ala	Val	Glu	Pro	Val	Ile	Phe	Ser	Asp	Met	Glu	Val	Lys	Ile
65					70					75					80
Ile	Thr	Trp	Gly	Ala	Asp	Thr	Ala	Ala	Cys	Gly	Asp	Ile	Ile	Ser	Gly
				85					90					95	
Leu	Pro	Val	Ser	Ala	Arg	Arg	Gly	Arg	Glu	Ile	Leu	Leu	Gly	Pro	Ala
				100					105					110	
Asp	Asn	Phe	Glu	Gly	Gln	Gly	Trp	Arg	Leu	Pro	Ile	Thr	Ala	Tyr	Ser
		115					120					125			
Gln	Gln	Thr	Arg	Gly	Leu	Leu	Gly	Cys	Ile	Ile	Thr	Ser	Leu	Thr	Gly
						135					140				
Arg	Asp	Lys	Asn	Gln	Val	Glu	Gly	Glu	Val	Gln	Val	Val	Ser	Thr	Ala
145					150					155					160
Thr	Gln	Ser	Phe	Leu	Ala	Thr	Cys	Val	Asn	Gly	Val	Cys	Trp	Thr	Val
				165					170					175	
Phe	His	Gly	Ala	Gly	Ser	Lys	Thr	Leu	Ala	Gly	Pro	Lys	Gly	Pro	Ile
			180					185					190		
Thr	Gln	Met	Tyr	Thr	Asn	Val	Asp	Gln	Asp	Leu	Val	Gly	Trp	Gln	Ala
			195				200					205			
Pro	Pro	Gly	Ala	Arg	Ser	Met	Thr	Pro	Cys	Thr	Cys	Gly	Ser	Ser	Asp
		210				215					220				
Leu	Tyr	Leu	Val	Thr	Arg	His	Ala	Asp	Val	Ile	Pro	Val	Arg	Arg	Arg
225					230					235					240
Gly	Asp	Ser	Arg	Gly	Ser	Leu	Leu	Ser	Pro	Arg	Pro	Val	Ser	Tyr	Leu
				245					250					255	
Lys	Gly	Ser	Ser	Gly	Gly	Pro	Leu	Leu	Cys	Pro	Ser	Gly	His	Ala	Val
			260					265					270		
Gly	Ile	Phe	Arg	Ala	Ala	Val	Cys	Thr	Arg	Gly	Val	Ala	Lys	Ala	Val
		275					280					285			
Asp	Phe	Ile	Pro	Val	Glu	Ser	Met	Glu	Thr	Thr	Met	Arg			
	290					295					300				

```
<210> 18
<211> 303
<212> PRT-
<213> HCV
```

<400> 18															
Ala	Gly	Ile	Thr	Lys	Val	Pro	Tyr	Phe	Val	Arg	Ala	Gln	Gly	Leu	Ile
1				5					10					15	
Arg	Ala	Cys	Met	Leu	Val	Arg	Lys	Ala	Ala	Gly	Gly	His	Tyr	Val	Gln
			20					25					30		
Met	Ala	Phe	Met	Lys	Leu	Ala	Ala	Leu	Thr	Gly	Thr	Tyr	Val	Tyr	Asp
		35					40					45			
His	Leu	Thr	Pro	Leu	Gln	Asp	Trp	Ala	His	Ala	Gly	Leu	Arg	Asp	Leu
	50					55					60				
Ala	Val	Ala	Val	Glu	Pro	Val	Ile	Phe	Ser	Asp	Met	Glu	Val	Lys	Ile
65					70					75				80	
Ile	Thr	Trp	Gly	Ala	Asp	Thr	Ala	Ala	Ala	Gly	Asp	Ile	Ile	Ser	Gly
				85					90					95	
Leu	Pro	Val	Ser	Ala	Arg	Arg	Gly	Arg	Glu	Ile	Leu	Leu	Gly	Pro	Ala
			100					105					110		
Asp	Asn	Phe	Glu	Gly	Gln	Gly	Trp	Arg	Leu	Leu	Ala	Pro	Ile	Thr	Ala
		115					120					125			
Tyr	Ser	Gln	Gln	Thr	Arg	Gly	Leu	Gly	Cys	Ile	Ile	Thr	Ser	Leu	
	130					135				140					

```

Thr Gly Arg Asp Lys Asn Gln Val Glu Gly Glu Val Gln Val Val Ser
145                               150                               155                               160
Thr Ala Thr Gln Ser Phe Leu Ala Thr Cys Val Asn Gly Val Cys Trp
                               165                               170                               175
Thr Val Phe His Gly Ala Gly Ser Lys Thr Leu Ala Gly Pro Lys Gly
                               180                               185                               190
Pro Ile Thr Gln Met Tyr Thr Asn Val Asp Gln Asp Leu Val Gly Trp
                               195                               200                               205
Gln Ala Pro Pro Gly Ala Arg Ser Met Thr Pro Cys Thr Cys Gly Ser
                               210                               215                               220
Ser Asp Leu Tyr Leu Val Thr Arg His Ala Asp Val Ile Pro Val Arg
225                               230                               235                               240
Arg Arg Gly Asp Ser Arg Gly Ser Leu Leu Ser Pro Arg Pro Val Ser
                               245                               250                               255
Tyr Leu Lys Gly Ser Ser Gly Gly Pro Leu Leu Cys Pro Ser Gly His
                               260                               265                               270
Ala Val Gly Ile Phe Arg Ala Ala Val Cys Thr Arg Gly Val Ala Lys
                               275                               280                               285
Ala Val Asp Phe Ile Pro Val Glu Ser Met Glu Thr Thr Met Arg
                               290                               295                               300

```

```

<210> 19
<211> 11
<212> PRT
<213> HCV

```

```

<220>
<221> VARIANT
<222> (1)...(1)
<223> Asp labeled with anthranilyl

```

```

<221> VARIANT
<222> (6)...(6)
<223> Xaa at position 6 is Abu

```

```

<221> VARIANT
<222> (6)...(7)
<223> Abu-A between 6 and 7 is C(O)-O
<221> VARIANT
<222> (9)...(9)
<223> Tyr at position 9 is derivatized with 3-NO2

```

```

<400> 19
Asp Asp Ile Val Pro Xaa Ala Met Tyr Thr Trp
 1              5              10

```

```

<210> 20
<211> 6
<212> PRT
<213> HCV

```

```

<220>
<221> VARIANT
<222> (1)...(1)
<223> Asp labeled with anthranilyl

```

